

**WHAT IS CLAIMED IS:**

1. A method for encapsulating at least one display device, the method comprising:

forming a plurality of parallel openings in a first material layer on a first substrate to expose a second material layer underneath; and

placing a predetermined sealant thereon to form a sealant region perpendicular to the openings for attaching a second substrate,

wherein the sealant contacts the first material layer and the second material layer through the openings for encapsulating the display device between the first and second substrates.

2. The method of claim 1 wherein the openings have a uniform width.

3. The method of claim 1 wherein the sealant has substantially flat contact surfaces with the first and second material layers.

4. The method of claim 1 wherein the first material layer is an organic polymer layer.

5. The method of claim 1 wherein the second material layer is a dielectric layer.

6. A sealant region for encapsulating at least one display device, the sealant region comprising:

a plurality of parallel openings in a first material layer on a first substrate to expose a second material layer underneath; and

a predetermined sealant placed thereon to form the sealant region perpendicular to the openings for attaching a second substrate,

wherein the sealant contacts the first material layer and the second material layer through the openings for encapsulating the display device between the first and second substrates, and

wherein the sealant has substantially flat contact surfaces with the first and second material layers.

7. The method of claim 6 wherein the openings have a uniform width.

8. The method of claim 6 wherein the first material layer is an organic polymer layer and the second material layer is a passivation layer.

9. A method for encapsulating at least one display device, the method comprising:

forming a sealant region having one or more openings having a predetermined pattern by removing portions of a first material layer on a first substrate to expose a second material layer underneath; and

placing a predetermined sealant in the openings for attaching a second substrate with the first substrate,

wherein the sealant in the openings is balanced along a center axis of the sealant region.

10. The method of claim 9 wherein the openings have a uniform width.

11. The method of claim 9 wherein a width of the openings is narrower than a total width of the sealant region.

12. The method of claim 9 wherein the first material layer is an organic polymer layer and the second material layer is a dielectric layer.

13. The method of claim 9 wherein the predetermined pattern is formed by a plurality of parallel openings.

14. The method of claim 9 wherein the predetermined pattern is formed by a plurality of openings arranged in a saw teeth form.

15. The method of claim 14 wherein the openings are arranged in a modified saw teeth form to avoid sharp angels formed by any two openings.

16. A method for encapsulating at least one display device, the method comprising:

forming a sealant region having at least one opening having a predetermined saw teeth pattern by removing portions of an organic material layer on a first substrate to expose a predetermined material layer underneath; and

placing a predetermined sealant in the openings for attaching a second substrate with the first substrate.

17. The method of claim 16 wherein the sealant in the opening is balanced along a center axis of the sealant region.

18. The method of claim 16 wherein the opening has a uniform width along a plurality of segments thereof.

19. The method of claim 16 wherein a width of the opening is narrower than a total width of the sealant region.

20. The method of claim 16 wherein the predetermined material layer is a passivation layer.